NuWave®

NUWAVE SERIES

Residential

Central Heat Recovery Ventilator

Product Specifications

and

Installation and User Manual

NuWave Series

Models

NW85T - NW125T

APPLICATION WARNING

It is always important to assess how the operation of any Heat Recovery Ventilator (HRV) may interact with vented combustion equipment (i.e. gas furnaces, oil furnaces, wood stoves, fireplaces. etc.) Never install an HRV in a situation where it's normal operation, lack of operation, or partial failure may result in the back drafting on vented combustion equipment such as water heaters, furnaces and fireplaces.

DO NOT ATTEMPT INSTALLING THIS HRV WITHOUT FIRST READING THIS ENTIRE MANUAL

- NOT FOR OUTSIDE USE -

ENERGY STAR RATED PRODUCTS: NW85T, NW125T

This product earned the ENERGY STAR by meeting strict energy efficiency guidelines set by Natural Resources Canada and the US EPA. It meets ENERGY STAR requirements only when used in Canada.

2100 HVI CERTIFIED™

ENERGY STAR

TÜV SÜD NRTL C US

BY:

SUMMERAIRE

Built Better To Last Longer

Summeraire Mfg.
Peterborough, Ontario,
Canada, K9J 6X6

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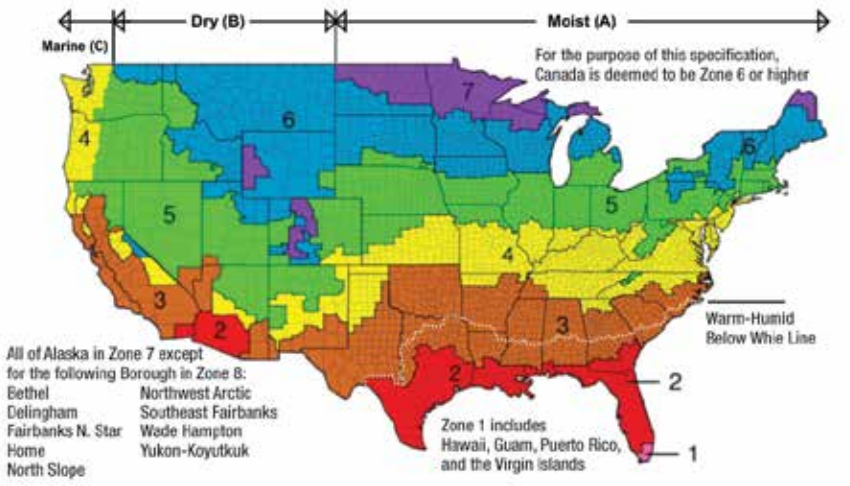
NOTE: Anytime the HRV is powered on allow 20 seconds for the main control to reset prior to making any operational changes.

ENERGY STAR

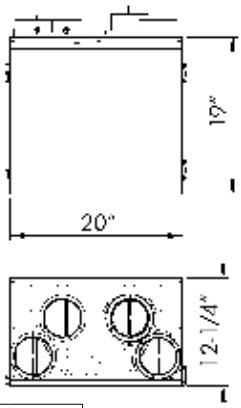
This product earned the ENERGY STAR by meeting strict energy efficiency guidelines set by Natural Resources Canada and the US EPA. It meets ENERGY STAR requirements only when used in Heating zones: Canada and/or climate zones ≥ 6 on the adjacent map.


Dry (B)
Moist (A)
Marine (C)
For the purpose of this specification, Canada is deemed to be Zone 6 or higher
Warm-Humid Below White Line
All of Alaska in Zone 7 except for the following Borough in Zone 8:
Bethel
Delingham
Fairbanks N. Star
Home
North Slope
Northwest Arctic
Southeast Fairbanks
Wade Hampton
Yukon-Koyutkuk
Zone 1 includes Hawaii, Guam, Puerto Rico, and the Virgin Islands

SPECIFICATIONS HEAT RECOVERY VENTILATORS PERFORMANCE RATINGS

MODEL: NW85T

Options Installed: None
Electrical: 120 V - 0.6 Amp
Exhaust Air Transfer Ratio: 0.02
Low Temp. Ventilation Reduction During -25°C Test 0.0
Maximum Unbalanced Airflow During -25°C Test: 29.7 L/s



VENTILATION PERFORMANCE							
EXT. STATIC PRESSURE		NET SUPPLY AIR FLOW		GROSS AIR FLOW SUPPLY		GROSS AIR FLOW EXHAUST	
Pa	in. wg	L/S	CFM	L/S	CFM	L/S	CFM
25	0.1	44	94	45	95	48	103
50	0.2	40	85	41	86	44	93
75	0.3	35	75	36	76	39	82
100	0.4	31	65	31	66	34	72
125	0.5	25	54	26	55	28	60
150	0.6	19	41	20	42	23	48

ENERGY PERFORMANCE										
		SUPPLY TEMPERATURE		NET AIR FLOW		SUPPLY/ EXHAUST FLOW RATIO	AVERAGE POWER (WATTS)	SENSIBLE RECOVERY EFFICIENCY	APPARENT SENSIBLE EFFECTIVENESS	NET MOISTURE TRANSFER
		°C	°F	L/S	CFM					
HEATING	i	0	32	15	32	1.01	30	75	84	-0.01
	ii	0	32	19	40	1.01	40	70	81	-0.02
	iii	0	32	23	48	1.03	36	71	80	0.06
	iv	0	22	36	76	1.01	60	65	73	-0.02
	v	-25	-13	23	48	1.10	35	60	82	0.02
	vi	-25	-13	36	75	1.10	51	56	75	0.02

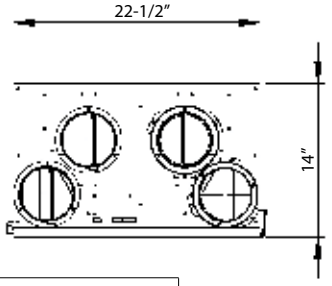
SUMMERAIRE MANUFACTURING
TRENT METALS (2012) LIMITED
PETERBOROUGH, ONTARIO K9J 6X6

SPECIFICATIONS HEAT RECOVERY VENTILATORS PERFORMANCE RATINGS

MODEL: NW125T

Options Installed: None
Electrical: 120 V - 1.5 Amp
Exhaust Air Transfer Ratio: 0.02
Low Temp. Reduction Reduction During -25°C Test 0.0/0.0%
Maximum Unbalanced Airflow During -25°C Test: 41.7/42.7 L/s

VENTILATION PERFORMANCE							
EXT. STATIC PRESSURE		NET SUPPLY AIR FLOW		GROSS AIR FLOW SUPPLY		EXHAUST	
Pa	in. wg	L/S	CFM	L/S	CFM	L/S	CFM
25	0.1	70	148	71	149	72	152
50	0.2	63	134	64	135	64	136
75	0.3	56	119	57	120	57	121
100	0.4	50	105	50	106	51	109
125	0.5	43	91	43	92	46	97
150	0.6	36	76	36	77	40	85
175	0.7	28	60	29	60	35	74
200	0.8	20	42	20	43	30	63



ENERGY PERFORMANCE											
		SUPPLY TEMPERATURE		NET AIR FLOW		SUPPLY/ EXHAUST FLOW RATIO	AVERAGE POWER (WATTS)	SENSIBLE RECOVERY EFFICIENCY	APPARENT SENSIBLE EFFECTIVENESS	NET MOISTURE TRANSFER
		°C	°F	L/S	CFM					
HEATING	i	0	32	22	47	1.00	56	75	86	0.00
	ii	0	32	31	66	1.00	62	73	82	0.01
	iii	0	32	46	97	1.00	104	67	77	0.01
	iv	-25	-13	22	47	1.08	57	61	88	0.02
	v	-25	-13	33	70	1.09	63	60	78	0.02

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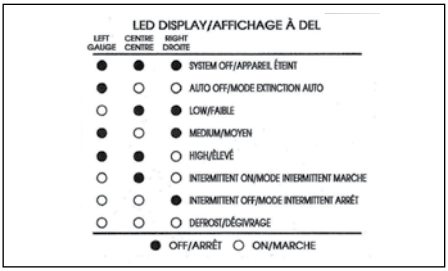
HRV LED function indicators



Note: a flashing LED is an indication that an external timer or dehumidistat has initiated a high speed ventilation sequence.

OPERATING FEATURES

Any of the following operating functions may be selected at the push button located at the left hand side of the HRV immediately below the illuminated leds, or at the optional Shepherd Digital control if installed.

System Off
The Ventilation system is turned off and will not respond to any control devices. Caution, HRV control device is powered in this mode. Prior to selecting System Off, ensure that the selectable 20/40/60 minute timer has been cancelled. This 20 minute timer may be cancelled by selecting any one of the three fan speeds. Prior to selecting the 20/40/60 minute feature, select any one of the three selectable fan speeds.

Auto/Off
The ventilation system remains in standby mode. When an optional timer control is activated the HRV will turn on to high speed ventilation until the timer has expired or is turned off. The system will reset to Auto/Off

Ventilation Low
The System operates in continuous low speed ventilation. When an optional timer control is activated, the system will switch to high speed ventilation until the timer has expired or is turned off. The system will then reset to low speed ventilation.

Ventilation Med
The system operates continuously in medium ventilation speed. When an optional timer is activated, the system will switch to high speed ventilation until the timer has expired or is turned off. The system will then reset to medium speed ventilation.

Ventilation High
The ventilation system operates continuously in high speed ventilation.

INTERMITTENT:

OFF
During this cycle the ventilation cycle remains in the off state for a period of 40 minutes. However, should an optional timer be activated, ventilation will turn on to high speed until the timer expires or is turned off.

ON
During this cycle ventilation is ON for a period of 20 minutes in low speed. However, should an optional timer be activated, ventilation will turn on to high speed until the timer expires or is turned off.

This intermittent cycle of 20 minutes ventilation ON followed by 40 minutes of ventilation OFF repeats automatically until another selection is made.

Defrost
When all LED's are illuminated the HRV is in an automatic defrost cycle for approximately 7 minutes. During this time minimal ventilation occurs. The HRV will automatically reset to the selected mode upon completion of the defrost cycle. There may be water flowing in the drain line during this cycle. This is normal.

All operating cycles may be automatically interupted by defrost cycle.

Should a power interruption occur, the HRV control will reset to the mode of operation selected.

The current mode of operation is displayed at the LEDs located on the front panel of the HRV.

OPTIONAL CONTROLS

Installation of a user-accessible control with your product will improve comfort and may significantly reduce the product's energy use.

Guardian Control

The Guardian control allows the user to monitor and set the system operating mode. The currently selected mode is displayed in bold. The diagram at left shows the LCD display with Fan Medium Speed mode selected.

If desired, the push-button may be pressed ONCE to turn the backlight on for easier viewing.

The control also allows Relative Humidity to be monitored. The Guardian acts as an automatic humidity control. A humidity threshold is set. When the measured humidity exceeds the setting the system switches to high speed ventilation until the humidity has been reduced below the threshold.

NuWave Digital Control Model - SHEPHERD

This SHEPERD control must be connected to the LCD & COM terminals on the HRV exterior. The SHEPHERD is a wall mount liquid crystal display device.

This control provides the opportunity to select all available operating features of the HRV.

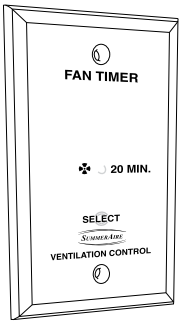
Simply push the select button once to highlight the screen.

Continue to press the select button until the desired fearture is highlighted.

The HRV will then assume the selected mode of operation.

Install using 18/2 thermostat wire or telephone wire up to two may be installed per HRV. No electrical box is required.

Refer to wiring diagram in this manual.



20 Minute Remote Timer Touch Pad Model ECPBT

This 20-Minute Touch Pad MUST be connected to the PBT & COM terminals on the HRV exterior.

Install using 18/2-thermostat wire or telephone wire. No electrical box is required. Maximum number of ECPBT controls per HRV is six (6).

Maximum cumulative lead length is 2000 lineal feet. Touch pads are typically installed where 20 minutes of high speed ventilation may be desired.
Once activated by a momentary push of the SELECT button on the Touch Pad, the HRV switches to high speed ventilation and the Touch Pad LED will illuminate. The HRV will reset to the previously selected mode of operation once the 20 minutes have expired. To cancel the selection, momentarily depress the SELECT button on the 20-minute Touch Pad. The selection can also be cancelled at any fan timer control by momentarily depressing the SELECT button.

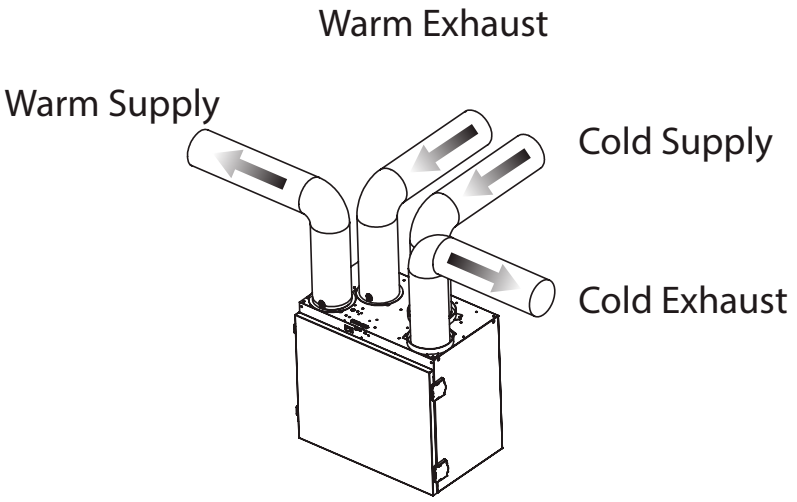
Should a dehumidistat be activated then the LED on this 20 minute timer will illuminate until the dehumidistat is turned off or automatically resets.

NOTE: This control will not respond while a crank timer or dehumidistat is operational.

Wall Mount Dehumidistat Model - SRDEH

This dehumidstat must be connnected to CT & COM terminals on the HRV exterior. This control is typically installed in an area of the home where humidity may require automatic monitoring. This could be a central location (i.e. near furnace thermostat) or in a specific room (i.e. kitchen, laundry etc.). Connect to HRV using 18/2 thermostat wire or telephone wire. No electrical box is required.

Model NW85T/NW125T
Illustrated



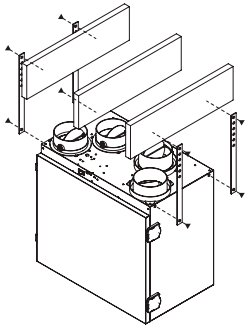
1. Selecting a location

Typically the HRV is located in the mechanical room with close proximity to an outside wall. Other installation locations are acceptable provided that the ambient air temperature does not fall below freezing. This is to prevent the condensate drain lines from freezing.

2. Mounting the HRV

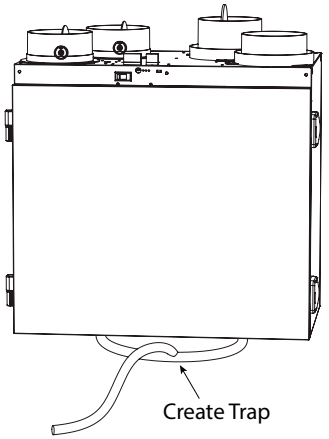
Included with the HRV are four (4) laminated rubber hanging straps. These are to be secured at each of the four corners of the HRV using the screws provided. The other ends of the straps should be secured to the floor joists using large head screws. To ensure proper condensate flow, HRV must be installed level in both directions.

To ensure quiet operation of ENERGY STAR qualified HRV/ERV's, each product should be installed using sound attenuation techniques appropriate for the installation.



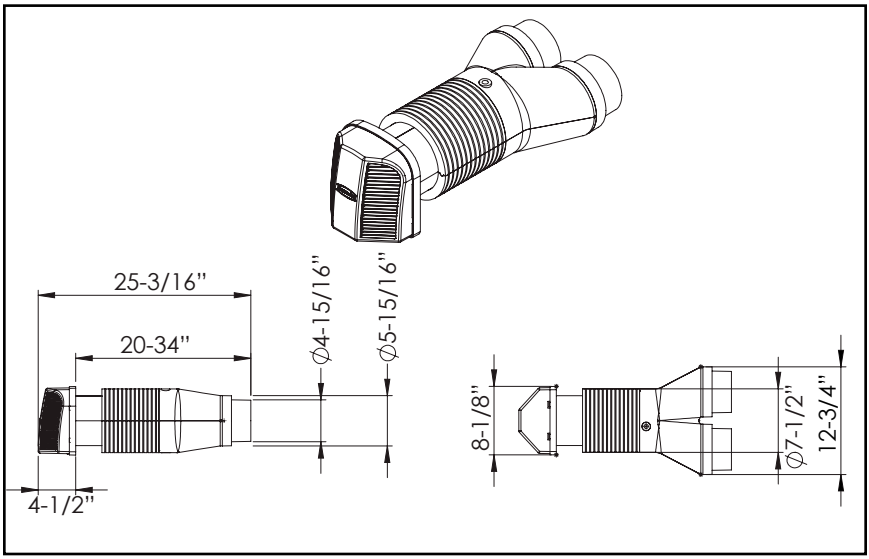
3. Condensate Drain hose installation

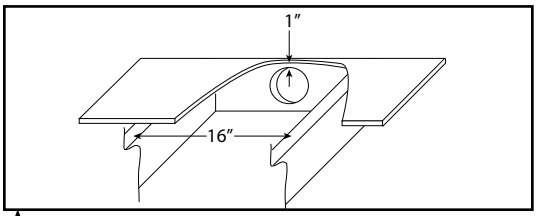
Two (2) drain spigot assemblies are provided. These are to be installed through the drain pan holes provided. Simply install the spigot through the openings and secure in place by installing the nylon washer and nut on the outside of the cabinet. Once installed, attach 1/2" plastic tubing (not supplied) to the spigots. Create a trap by forming a loop in the tubing. This will prevent the cross contamination of the air streams through the tubing. Ensure that the condensate drain tubing is not exposed to freezing temperatures. Typically the drain line is connected into a floor drain, sink or stand pipe.



4.

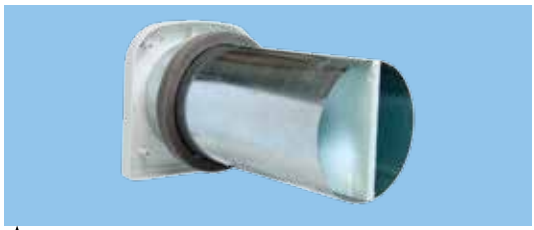
OPTIONAL CONCENTRIC VENT





Step 1

Cut a 6” diameter hole in the exterior wall of the building. The top of the hole should be a minimum of 1” from the bottom of the floor above (if applicable).

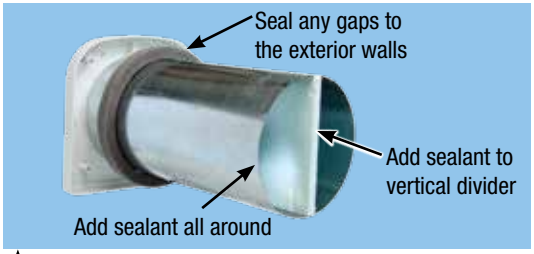


Step 2

Install the round foam gasket (provided) around the 6” galvanized duct and slide it up against the backplate.

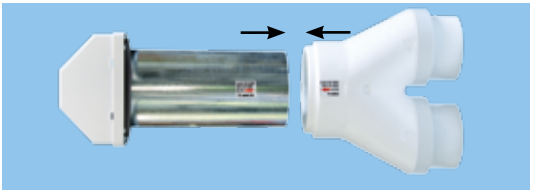
Step 3

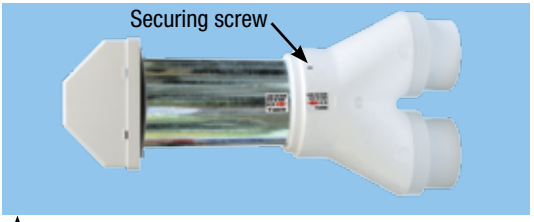
Insert the 6” galvanized duct through the hole cut in the exterior wall. Slide in until the back plate is flush with the exterior wall. Level the backplate and drill 4 holes in the exterior wall. Seal the Backplate with exterior weatherproof sealant and screw in place. Line up and hold the screen in place using the guidelines molded into the backplate and snap on the hood cover.



Step 4

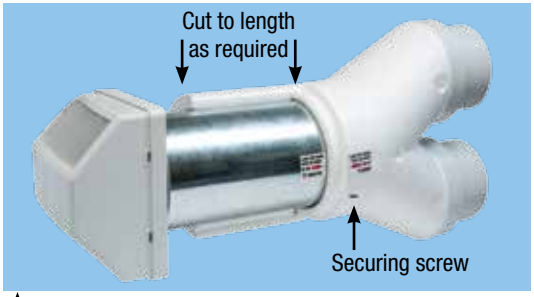
Apply a generous bead of silicone: Silicone around the 6” galvanized duct at the interior wall providing a complete seal to the outdoors. Generously silicone the end of the internal divider located within the 6” galvanized duct. Silicone around the outer edge of the 6” galvanized duct.





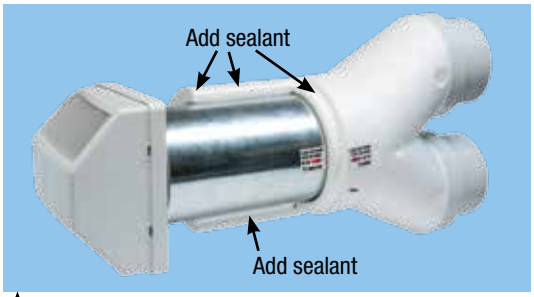
Step 5

Install the Y transition onto the 6” galvanized duct. Be sure that the internal Y transition divider aligns with the galvanized duct divider by aligning the arrows.
Push the Y transition on all the way. Aligning the the galvanized duct.
Once assembled, install the Securing screw provided in the hole in the Y transition to ensure positive alignment.



Step 6

Measure from the interior wall to the duct Y transition. Line up the 2 halves of the duct insulator to fit together and using a sharp knife, cut both halves of the duct insulator to the measured distance.



Step 7

Apply a bead of silicone along the concave sides of the duct insulator. Silicone both ends of the duct insulator. Align the cut ends of the duct insulators towards the exterior wall and wrap the 2 halves of the insulator around the exposed 6" galvanized duct. Secure the duct insulator with the Nylon Cable Tie provided.

Step 8

Ensure complete seal between duct insulator sleeve, exterior wall and 'Y' transition to create a vapor barrier. Secure the insulating duct halves with the tie wraps provided.

NOTICE

It should be noted that a mild flow reduction may be realized with the use of a concentric vent. The following flow reductions may be realized.

Up to 100 CFM - 3%
Up to 160 CFM – 7%
Up to 200 CFM – 11 %

InstallationClearances

• Minimuim 6' (2m) away from dryer vents, furnace exhaust (medium or high efficiency furnaces), driveways, oil fill pipes, gas meters, or garbage containers
• At least 18" (457 mm) above the ground, or above the depth of expected snow accumulation.
•At least 3' (1m) from the corner of the building.
• Do not locate in a garage, attic or crawl space.
• A Concentric Vent shall be installed so as to prevent cross-contamination of the supply and exhaust air streams.
• Leakage from the exhaust air stream to the supply air stream shall not constitute more than 15% of the exhaust airflow provided by the HRV
• Locate away from prevailing winds whenever possible.

Included in this Kit

- Hood Assembly
- Y transition
- Nylon Cable Tie (3)
- Four #8 x 1 1/2Wood Screws and rawl plugs
- Foam Gasket
- Duct Insulator (2 pieces)
- Screen

Additional Materials Required for this Kit

- Waterproof sealant (silicone)

ATTENTION!

Contact your local building authority before installation of the Concentric Vent to verify compliance with local building codes.

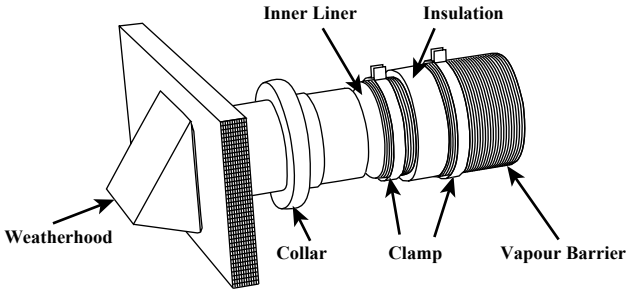
CAUTION!

Sealant must be applied as per instructions or leakage and condensation may occur.

ATTENTION!

Insulate the Fresh Air Supply and Stale Air Exhaust ductwork back to the unit.

4. 1 Optional Weatherhoods and Ducting to the outside.



The outside weather hoods must have built in bird screens to prevent birds and rodents from entering the duct system. Minimum mesh size of 1/4" must be used. Smaller mesh size will result in restricted air flows with increased potential for the development of blockages.

Weather hoods should be installed:

1) Separate air intake and exhaust outlet openings, when located on the same wall or roof, shall be installed so as to avoid contamination of the ventilation air by the exhaust air.

2) Intake openings shall be located so as to avoid contamination of the ventilation air from other local sources such as automobile exhausts and exhaust from adjacent buildings.

3) The distance from the bottom of an air intake opening to finished ground level or to any nearer and lower permanent horizontal surface shall be not less than 450 mm or the depth of expected snow accumulation, whichever is greater.

4) The distance separating air intakes from building envelope penetrations that are potential sources of contaminants, such as gas vents or oil fill pipes, shall be not less than 900 mm.

The size and design of the weather hoods shall be selected to ensure adequate free area to minimize air flow restrictions.

It is recommended that 6” insulated ducting with a integral single piece vapour barrier be provided. Due to the high air flow restrictions in insulated flex duct it is recommended that run lengths be kept to a minimum, stretched tightly and with as few elbows as possible, if length greater 25 ft. use 7” insulated duct. Minimum RSI value of 0.75 (R4) is required.

Weather hood collar should be screwed to inner surface of sill plate and sealed with high quality caulking or aluminum faced tape. Both the inner and outer liners of flexible ducting should be securely attached to the weather hood tubing and collar and to the HRV collar. A good bead of high quality caulking (preferably acoustical sealant) should be used prior to clamping the liners. It is very important to ensure that the fresh air intake line is well sealed and that the vapour barrier is sealed.

5. Installation Methods

Direct (Simplified) Installation

The Direct (Simplified) Installation method requires that the forced air system circulation fan be operated when the HRV is in use.

Please refer to fig. I.

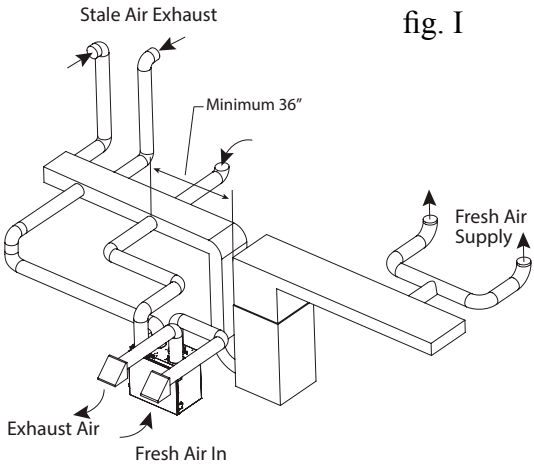


fig. I

Indirect Partially Dedicated Installation

This method of installation permits localized exhaust of indoor air and uses the existing forced air system to distribute fresh air.

This method of installation requires that the forced air circulation fan be operated when the HRV is in use.

Please refer to fig II. below.

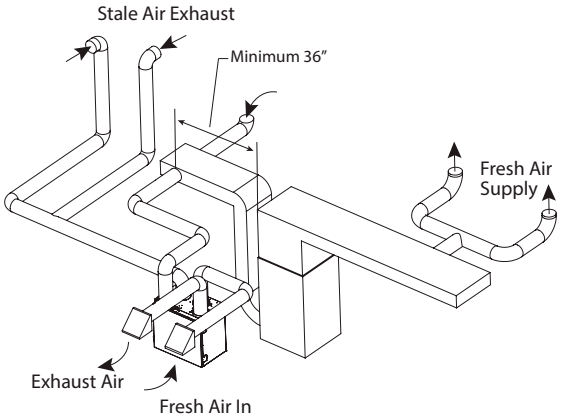


fig. II

Dedicated Installation

In this arrangement the HRV is installed with a dedicated duct system. All applicable rooms are exhausted and provided with fresh supply air as required. This type of installation provides exhaust and supply air to each serviced room.

The HRV system operates independent of the home's heating system.

Please refer to fig III. below.

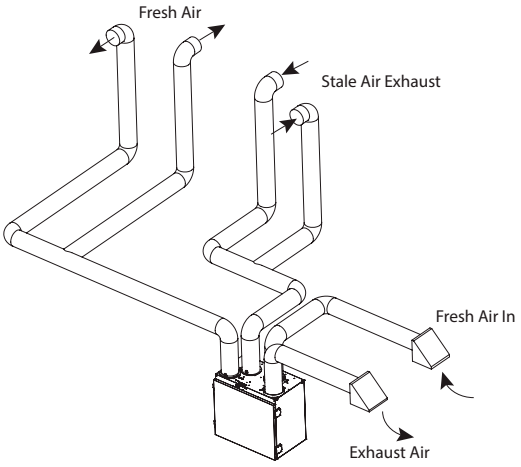


fig. III

6. Interior Ducting

Ducting to the central forced air ductwork system, or if used, a dedicated duct system, should be made of galvanized metal whenever possible.

To minimize airflow losses, runs should be kept as short as possible using 45 degree elbows instead of 90 degree. Whenever possible use “Y” fittings instead of “T” fittings.

All joints must be fastened with screws, rivets or duct sealant and wrapped with a quality duct tape to prevent leakage. If standard grills are used, it is recommended that wall grills of not less than 6” x 12” and floor grills of no less than 4” x 10” be used to minimize air flow restrictions.

7. Fresh Air Supply Ducting

Fresh air supply ducting to the living space may be either a dedicated or an indirect duct system. Please refer to figures II and II.

Should the indirect method be used it is suggested that at the point of connection to the HRV that a short length of flex duct be used to electrically isolate the two systems.

Fresh air supply grills may be either wall or ceiling mounted. Avoid locating these grills where room occupants may be exposed to the fresh air supply as this air temperature may be slightly less than the room air temperature.

Also, it is recommended that adjustable grills such as round “Tech Grills” be used to permit balancing of the ventilation by room application.

8. Stale Air Return System

The stale air return system is used to extract humid, stale air from the areas of the dwelling where the worst air quality conditions might exist. These may include areas such as laundry rooms, bathrooms and kitchens. Note that C.S.A. Standard F326 requires that air be exhausted from each room with a forced air furnace.

Wall stud spaces can be used as ducting for high wall returns provided that they are lined with galvanized metal.

Note: Check local code compliance before implementing.

Adjustable “Tech Grills” are recommended for use in the return air system. They can be wall or ceiling mounted thereby permitting balancing of the air being exhausted. Stale air return grills should be located at opposite ends in the room to the fresh air grills to ensure good air exchange.

Please note that the exhaust air stream from a kitchen area must never be connected to the kitchen range hood. Instead an exhaust grill should be mounted high on the wall as required by local codes so as not to extract cooking by products.

9. Air Flow Balancing

READ THE APPLICATION WARNING AT THE FRONT OF THIS MANUAL.

A magnehelic gauge and pilot tube flow measuring system is used for easy and accurate air flow measurement

Upon completion of the installation it is necessary that the Ventilation System be balanced. This is necessary to ensure that the volume of air being exhausted from the dwelling is equal to the volume of air being supplied. Balancing will also ensure that the HRV is operating at it’s maximum efficiency.

Detailed check list to be carried out prior to balancing.

a) Install air flow station in each of the warm air streams.
b) Ensure that all ductwork is secured and sealed.
c) Drain connections are in place and drain trap filled with water.
d) Dwelling vapour barrier is complete and intact.
e) Fireplace dampers, windows and doors are closed.

f) Clothes dryer off, (if vented to the outdoors)

g) Furnace, hot water heater, (non direct vent) are turned off.

h) All other exhaust fans are off.

i) Ensure that HRV filters and core are in place and integral balancing dampers are wide open.

j) Power up HRV and set to high speed.

k) Adjust all branch tech grills and registers to desired air flows.

l) After taking readings at both the stale air being exhausted and the fresh air supply air stream, damper down the higher air flow stream with the integral balancing damper to equal the lower volume air stream.

m) Once the air flows are balanced lock the balancing dampers in place.

n) While it is necessary to ensure that both air streams are balanced within 10% of each other, a near balanced condition should be possible.

o) Upon completion, return the fan speed selection to the normal speed of low.

A positive pressure situation within the dwelling may drive moist air into the external walls of the dwelling where, in cold weather, it may condensate, potentially causing structural damage.

A negative pressure within the dwelling may have severe undesirable effects. In some geographic locations, radon gas may be drawn into the living space. A negative condition may also cause back drafting of vented combustion appliances such as fireplaces and furnaces.

When it is possible for excessive pressurization or depressurization of a dwelling to occur it may be necessary to perform a House Pressure Test. This test is most important where fuel fired devices are installed that are susceptible to spillage.

IT IS YOUR RESPONSIBILITY TO DETERMINE IF THE "HOUSE PRESSURE TEST" IS REQUIRED.

AIR FLOW BALANCING

READ THE APPLICATION WARNING AT THE FRONT OF THIS MANUAL.

Upon completion of the installation it is necessary that the Ventilation System be balanced. This is necessary to ensure that the volume of air being exhausted from the dwelling is equal to the volume of air being supplied. Balancing will also ensure that the HRV is operating at it's maximum efficiency.

Equipment Required:

- Magnahelic Gauge or Inclined Manometer with scale to 1" WC
- ¼" diameter rigid tube to provide 2", +/- 1/16" insertion into each of the 2 door ports
- Flexible ¼" tubing

Procedure:

Turn off all appliances and fans that may vent to the outdoors (i.e. vacuums, furnaces, range hoods, clothes dryers, water heaters etc.).

All dwelling windows and doors are closed, close fireplace dampers.

Dwelling vapour barrier is complete and intact.

Ensure HRV drain connections are in place, drain trap is created in drain hose and that the trap is filled with water.

HRV filters and energy recover cores are in place.

Turn on furnace circulating fan if HRV is connected to furnace ducting.

Ensure all duct connections are sealed.

Open HRV balancing dampers fully.

Power up HRV and set speed to high.

Allow system to stabilize, approximately 2 minutes.

Position magnahelic gauge close to HRV and set to zero.

With flexible line connected to magnahelic and rigid tube connected to flexible tube, insert rigid tube into lower door port 2" and record reading at magnahelic.

Remove tube and insert into upper door port 2" and record reading.

Close balancing damper associated with the higher reading until that reading equals the required value shown in Fig. 5 to provide the same CFM. Secure both dampers by tightening the locking screws once the set points are established.

Recheck both pressures and record.

Install 1/4" white hole plugs provided into balancing ports in door.

While it is necessary to ensure that both air streams are balanced within 10%, a near balanced condition should be possible.

Fig. 5

MODEL NW85T ONLY AT HIGH SPEED

Refer to the following conversion chart to determine CFM flow.

Mag Reading Inches WG Supply Air Stream	Mag Reading Inches WG Supply Air Stream	CFM Equivalent
Note 1	**Note 2**	
.32	.29	78
.37	.36	67
.46	.44	60
.53	.52	52
.59	.58	45
.67	.65	35
.74	.73	22
Note 1 - Dedicated Supply and Exhaust System, NO furnace present		
Note 2 - Furnace fan running on Heat Speed, Return @ .10" ESP.		

Mag Reading Inches WG Exhaust Air Stream	Mag Reading Inches WG Exhaust Air Stream	CFM Equivalent
Note 1	**Note 2**	
.38	.37	79
.43	.42	69
.51	.50	64
.58	.57	56
.63	.61	49
.70	.69	36
.76	.74	29
Note 1 - Dedicated Supply and Exhaust System, NO furnace present		
Note 2 - Furnace fan running on Heat Speed, Return @ .10" ESP.		

A positive pressure situation within the dwelling may drive moist air into the external walls where, in cold weather it may condense, potentially causing structural damage.

A negative pressure situation within the dwelling may have severe undesirable effects. In some geographic locations, radon gas may be drawn into the living space. A negative condition may also cause back drafting of vented combustion appliances such as fireplaces and furnaces.

When it is possible for excessive pressurization or depressurization of a dwelling to occur it may be necessary to perform a House Depressurization Test. This test is most important where fuel fired devices are installed that are susceptible to spillage.

IT IS YOUR RESPONSIBILITY TO DETERMINE IF THE "HOUSE DEPRESSURIZATION TEST" IS REQUIRED.

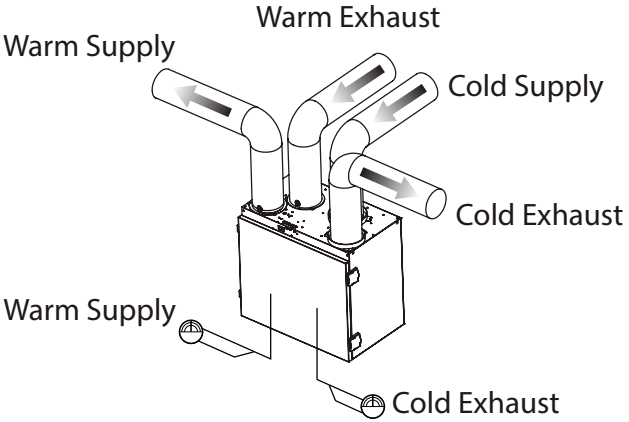
Summeraire HRV Air Flow Balancing
Models: NW85T/NW125T

A. Preliminary Procedures:

1. Seal all the unit's ductwork with foil tape.

2. Close all windows and doors and fireplace damper, turn off all exhaust devices (range hoods, clothes dryer, bath fan, etc.), make sure all filters are clean.

3. Set build-in balancing dampers fully open. Tap 1/8" hole in ductwork for pitot tube insertion.



B. Balancing Procedures:

1.Set HRV to high speed. Make sure that the furnace blower is ON if the installation is in any way connected to the ductwork of the furnace. If not, leave the furnace blower OFF. Adjust air flow in branch lines if using source point exhaust and/or supply.

2. If outside temperature is below -3°C (26°F), make sure defrost light is not on while balancing.

3. Place magnahelic gauge on a level surface and adjust it to zero. Insert pitot tube into exhaust air ductwork with tip aligned with ductwork, pointing away from HRV, into air flow. Record the reading on gauge.

4. Move kit to other air stream HRV, insert pilot tube into fresh air ductwork with tip aligned with ductwork, pointing towards HRV , into air flow. Record reading on gauge. Adjust fresh air balancing damper until reading is approximately the same as in exhaust air ductwork. If the reading in the fresh air ductwork is less than in the exhaust air, go back and adjust the exhaust balancing damper to equal the fresh air flow.

5. Secure dampers in place with fastening screw. Duct tape over pitot tube holes.Convert FPM reading on gauge to CFM with conversion chart and record on balancing sticker and affix to HRV near label.

6. Note: Unit is considered balanced if readings are within +/- 10%.

HRV TROUBLE SHOOTING GUIDE
OPERATION GUIDE

PROBLEM	PROBABLE CAUSE	SOLUTION
PERSISTENT CONDENSATION ON WINDOWS	IMPROPER ADJUSTMENT OF DEHUMIDISTAT(S).	ADJUST DEHUMIDISTAT(S) TO CORRECT RH READING (see operation manual), ADJUST TO A LOWER SETTING. CHECK OPERATION OF DEHUMIDISTAT, IF DEFECTIVE, REPLACE. INSTALL A DEHUMIDISTAT IN LIVING AREA OF HOME.
	IMPROPER VENTILATION RATE.	ENSURE HRV IS ON CONTINUOUSLY. INCREASE FAN SPEED. BALANCE SYSTEM.
DEFROST NOT WORKING.	BROKEN DAMPER BLADE ASSY.	REPLACE.
FRESH AIR DUCT FROZEN OR VERY COLD (DEFROST LIGHT COMES ON) .	FAILED MAIN CONTROL BOARD.	IF DAMPER DOOR DOES NOT OPERATE DURING “START UP SELF DIAGNOSTIC” BUT POWER LIGHTS ARE ON, BOARD MAY REQUIRE REPLACEMENT.
	DEFECTIVE DAMPER MOTOR.	REPLACE. INSPECT CONNECTION BETWEEN MOTOR SHAFT AND DAMPER, COUPLING MAY BE LOOSE.
HUMIDITY LEVEL TOO LOW	HRV AIR FLOWS IMPROPERLY BALANCED.	BALANCE HRV
	DEHUMIDISTAT CONTROL SET TO LOW.	SET DEHUMIDISTAT TO A HIGHER SET POINT.
	LIFE STYLE OF OCCUPANTS.	HUMIDITY MAY HAVE TO BE ARTIFICIALLY ADDED, i.e. HUMIDIFIER.
	VENTILATION RATE TOO HIGH	ADJUST TO LOWER FAN SPEED OR INTERMITTENT

PROBLEM	PROBABLE CAUSE	SOLUTION
HUMIDITY LEVEL TOO HIGH	HRV AIR FLOWS IMPROPERLY BALANCED	BALANCE HRV
	HRV UNDERSIZED.	
	DEHUMIDISTAT SET TOO HIGH	SET DEHUMIDISTAT TO A LOWER SETTING.
	HRV UNDERSIZED TO HANDLE HOT TUB, INDOOR POOLS, ETC.	COVER POOLS, HOT TUBS ETC. WHEN NOT IN USE.
	LIFESTYLES OF OCCUPANTS	AVOID HANGING CLOTHES TO DRY INSIDE, AVOID STORING WOOD INSIDE AND VENT DRYERS OUTSIDE.
HRV AND/OR DUCTS FROSTING UP	HRV AIR FLOWS IMPROPERLY BALANCED	BALANCE HRV NOTE: FROST BUILD UP IS EXPECTED ON CORES PRIOR TO INITIATING A DEFROST CYCLE.
SUPPLY AIR FEELS COOL	HRV AIR FLOWS IMPROPERLY BALANCED.	BALANCE HRV.
	POOR LOCATION OF SUPPLY GRILLS.	LOCATE GRILLS HIGH ON WALLS OR UNDER BASEBOARDS.
	OUTDOOR TEMPERATURE EXTREMELY COLD.	IF SUPPLY AIR IS INSTALLED INTO RETURN AIR OF FURNACE, FURNACE FAN NEEDS TO RUN CONSTANTLY TO DISTRIBUTE VENTILATION AIR COMFORTABLY. ENSURE THAT A BREATHER “T” IS INSTALLED IN SUPPLY DUCT. PREHEATER MAY BE REQUIRED.
WATER IN BOTTOM OF HRV	DRAIN PAN (S) PLUGGED	ENSURE “O” RINGS ON DRAIN SPIGOT SEATS PROPERLY LOOK FOR KINKS IN LINE.
	DRAIN LINES OBSTRUCTED	CHECK WATER DRAIN CONNECTIONS. MAKE SURE WATER DRAINS PROPERLY FROM THE PAN(S)
	HRV HEAT EXCHANGE CORE NOT INSTALLED PROPERLY	CHECK ORIENTATION LABEL ON FRONT OF CORE AND POSITION CORE CORRECTLY. HRV MAY NOT BE LEVEL

PROBLEM	PROBABLE CAUSE	SOLUTION
AIR FLOWS ARE POOR	HRV AIR FLOW IMPROPERLY BALANCED	BALANCE HRV.
	FILTER/CORE PLUGGED UP	CLEAN AND REINSTALL
	1/4" MESH ON OUTSIDE HOODS PLUGGED	REMOVE OBSTRUCTIONS IN DUCT(S), HOODS AND GRILLS.
	IMPROPERLY SIZED DUCTING	
	UNDER SIZED HRV MALFUNCTION WITH HRV	INSPECT FAN WHEELS TO ENSURE THEY ARE TURNING FREELY
CONDENSATION OR ICE BUILD UP IN INSULATED DUCT	INCOMPLETE VAPOUR BARRIER AROUND INSULATED DUCT	TAPE ALL JOINTS ENSURE THAT VAPOUR BARRIER IS COMPLETELY SEALED
	UNUSUALLY HUMID AMBIENT	WRONG APPLICATION OF HRV
	DOOR GASKET DAMAGED	REPLACE GASKETING
WATER LEAKS	HRV NOT LEVEL	LEVEL HRV
	EXCESSIVE WATER DUE TO NEW WET CONSTRUCTION	OPERATE HRV ON LOWER SPEED ie. INTERMITTENT
FROST ON FRESH AIR INTAKE & STALE AIR EXHAUST FLEX	HRV CORE INSTALLED IN REVERSE	INSTALL CORE CORRECTLY "FRONT" OF CORE HAS INSTALLATION INSTRUCTION LABEL INSTALL WITH LABEL FACING HRV DOOR
	VAPOUR BARRIER INCOMPLETE	REPAIR SEAL OF ALL CRACKS AND TEARS
HRV STATUS PANEL FLASHING HIGH CONTINUOUSLY	HRV INTERNAL DEHUMIDISTAT SET TO LOW	ADJUST DEHUMIDISTAT TO HIGHER SET POINT

CONTROL FUNCTION

NOTE: ALL EXTERNAL MAINTENANCE TO BE PERFORMED BY A CERTIFIED ELECTRICIAN ONLY

PROBLEM	PROBABLE CAUSE	SOLUTION
NO POWER INDICATION AT ON/OFF SWITCH	LACK OF POWER AT SUPPLY	CHECK FOR POWER
	DOOR SAFETY SWITCH NOT ENGAGED	ENSURE THAT DOOR SWITCH IS OPERATING
	DEFECTIVE DOOR SWITCH	REMOVE MAIN ACCESS DOOR AND CONTROL COVER PLATE. APPLY POWER TO HRV AND CLOSE DOOR SWITCH AND TEST THE TWO LEADS ON BACK OF SWITCH, ONE SHOULD HAVE A READING. CLOSE DOOR SWITCH AND CHECK OTHER LEAD WITH METER AND KNOWN NEUTRAL. IF NO READING IS PRESENT THEN REPLACE SWITCH.
	DEFECTIVE POWER SWITCH	POWER UP HRV, CLOSE DOOR SAFETY SWITCH, TURN POWER SWITCH TO ON. PLACE ONE LEAD OF VOLT METER ON KNOWN NEUTRAL AND THE OTHER ON TERMINALS ON BACK OF SWITCH, ONE AT A TIME. VOLTAGE READING SHOULD BE LINE VOLTAGE ON BOTH BLACK LEADS. IF NOT, THEN REPLACE SWITCH. CONFIRM NEUTRAL AT SWITCH LEAD WITH KNOW NEUTRAL DISCONNECT POWER TO HRV. IDENTIFY KNOWN NEUTRAL, POSITION ONE LEAD OF OHM METER ON KNOWN NEUTRAL AND OTHER AT NEUTRAL LEAD AT REAR OF SWITCH. IF NO READING THEN INVESTIGATE CONNECTION OF NEUTRAL LEAD WIRE. AND OUTPUT. IF NO READING THEN REPLACE FILTER.
NOTHING WORKS	POWER OFF – UNPLUGGED FROM POWER SOURCE	RESTART HRV. THIS WILL RESET THE ELECTRONIC CONTROL BOARD

NOTE: ALL EXTERNAL MAINTENANCE TO BE PERFORMED BY A CERTIFIED ELECTRICIAN ONLY

PROBLEM	PROBABLE CAUSE	SOLUTION
DAMPER MOTOR NOT ACTUATING, NO ACTION WHEN SHORTING DEHUMIDISTAT TERMINALS	CHECK ELECTRICAL PANEL - CIRCUIT BREAKER – FUSE. CHECK HRV	RESET CIRCUIT BREAKER OR REPLACE FUSE, OR YOU MAY BE REQUIRED TO CALL AN CERTIFIED ELECTRICIAN.
	DOOR INTERLOCK SWITCH	REPLACE DOOR SWITCH.
BLOWER MOTOR NOT OPERATING BUT POWER LIGHT ON.		UNPLUG 120V POWER SOURCE, APPLY 120V DIRECTLY TO MOTOR, IF MOTOR DOES NOT RUN, REPLACE CAPACITOR, IF MOTOR DOES NOT RUN, REPLACE MOTOR.
DEHUMIDISTAT (S) NOT WORKING (INTERNAL AND/OR REMOTE WALL MOUNTED)		DISCONNECT LEADS AT DEHUMIDISTAT AND SHORT TOGETHER. IF HRV RESPONDS TO HIGH SPEED THEN REPLACE DEHUMIDISTAT.
HRV MAKES AN ANNOYING NOISE	SUPPLY OR EXHAUST BLOWER WHEEL OUT OF ADJUSTMENT	REMOTE MOTOR ASSEMBLY AND TIGHTEN SCREW ON MOTOR SHAFT. CHECK SUPPLY /EXHAUST WHEELS FOR BALANCE. REPLACE IF NECESSARY. ENSURE THAT FAN WHEELS ARE NOT RUBBING ON FAN HOUSING INLET RING.
NOISE LEVEL TOO HIGH AT DISTRIBUTION REGISTERS WHEN HRV ON HIGH SPEED	AIR DUCT SYSTEM TOO SHORT	REDESIGN DUCT SYSTEM OR INSTALL SILENCER.

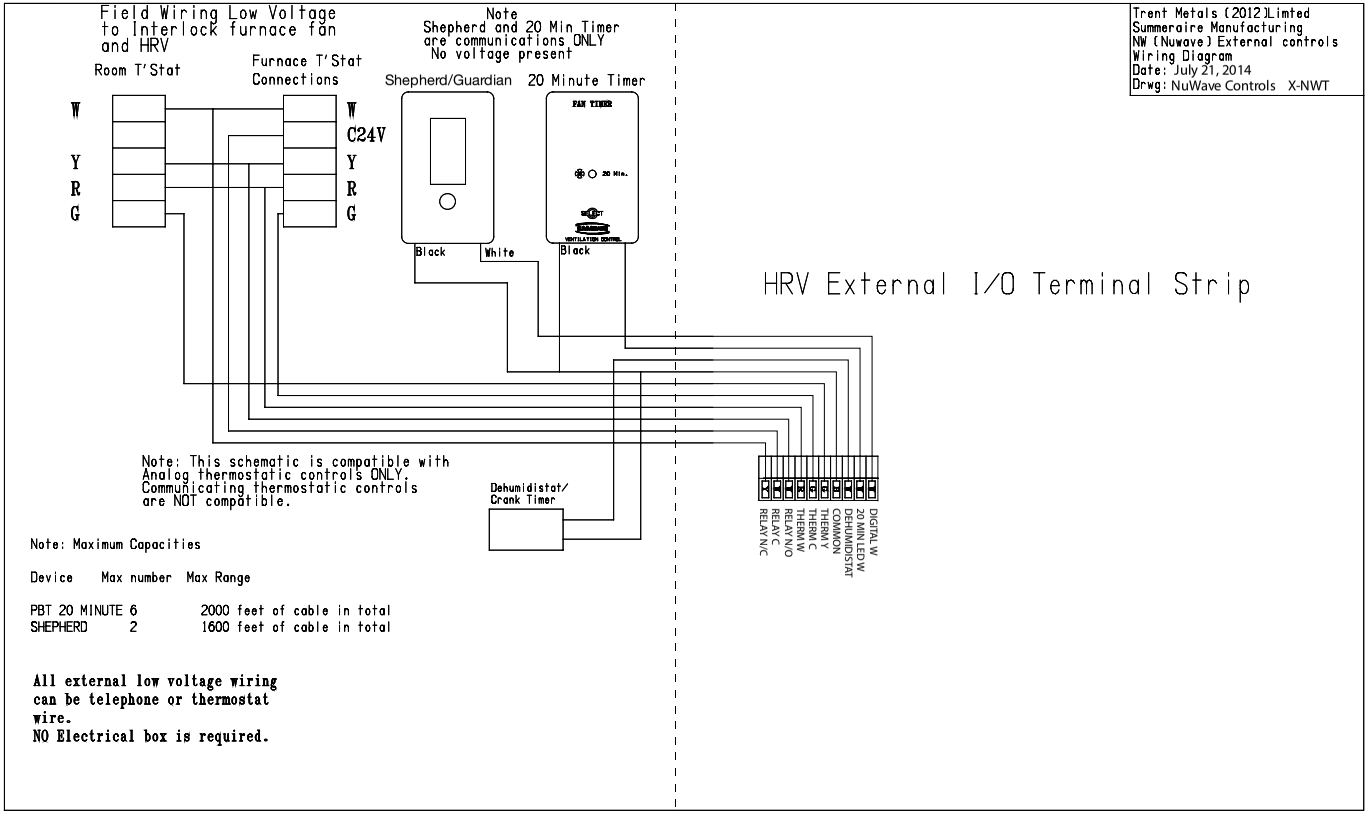
NOTE: ALL EXTERNAL MAINTENANCE TO BE PERFORMED BY A CERTIFIED ELECTRICIAN ONLY

PROBLEM	PROBABLE CAUSE	SOLUTION
TOUCH PAD	CHECK FOR CORRECT WIRE GAUGE (18) OR WIRING TO HRV OR SWITCH IMPROPER CONNECTION TO 24V TERMINALS	CONFIRM WIRING TO WIRING DIAGRAM. CHANGE TO CORRECT WIRE GAUGE. CHECK TOUCH PAD FOR PROPER CONNECTIONS. ENSURE THAT CORRECT SWITCHES ARE BEING USED.
	EXTERNAL LOW VOLTAGE WIRE IS SHORTED OUT BY A STAPLE OR NAIL	DISCONNECT LEADS AT BOTH ENDS @ TEST FOR CONTINUITY BETWEEN LEADS.
DAMPER MOTOR STAYS IN DEFROST. DEFROST L.E.D NOT ILLUMINATED. LEAD.	DEFECTIVE DAMPER MOTOR DEFECTIVE CONTROL BOARD	PICK COMMON COLOURED (2) DAMPER MOTOR LEADS. PROBE 1 OF THESE LEADS WITH 1 LEAD FROM METER. WITH THE OTHER METER LEAD PROBE 1 OF THE OTHER SINGLE METER SHOULD READ 30V OR 27V. THE POSITION OF THE DAMPER MOTOR DETERMINES THE VOLTAGE YOU WILL READ (IT WILL BE ONE OR THE OTHER) IF THESE READINGS ARE OBTAINED, CHANGE THE DAMPER MOTOR. IF NO VOLTAGE PRESENT, OR VOLTAGES ARE THE SAME, CHANGE THE CONTROL BOARD.
FAN SPEED DOESN'T SEEM TO CHANGE AS SELECTIONS ARE MADE ON SELECT BUTTON.	IMPROPER DUCT SYSTEM INSTALLED.	ENSURE THAT MOTOR AMP DRAW DOES NOT EXCEED NAMEPLATE RATING. INCREASED STATIC (I.E. DAMPERING) MAY BE NECESSARY.
	INCORRECT VOLTAGE, MEASURE LINE VOLTAGE & VOLTAGE TO MOTOR.	DETERMINE IF IT'S CORRECT AND CONFIRM THAT VOLT METER IS READING CORRECTLY. ALL VOLTAGES MUST BE MEASURED WITH DUCT SYSTEM INSTALLED. LOW SPEED 97 VOLTS MEDIUM SPEED 105 VOLTS HIGH SPEED 120 VOLTS IF THE VOLTAGES ARE CORRECT THEN THE DUCT SYSTEM STATIC IS TOO LOW.

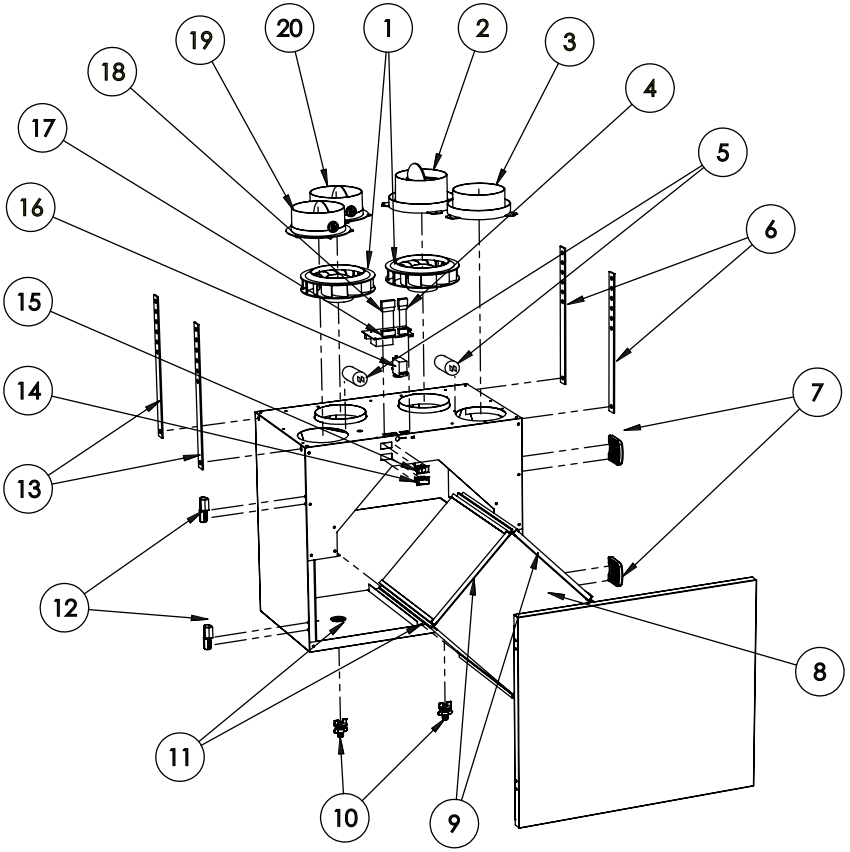
NOTE: ALL EXTERNAL MAINTENANCE TO BE PERFORMED BY A CERTIFIED ELECTRICIAN ONLY

PROBLEM	PROBABLE CAUSE	SOLUTION
CONTROL BOARD CHANGED UNIT DOES NOT SEEM TO RUN PROPERTY	DIP SWITCHES NOT SET AS INSTRUCTED	RESET DIP SWITCHES TO ORIGINAL SPECIFICATIONS.
WHEN UNIT IS INITIALLY POWERED ON, UNIT STAYS IN DEFROST MODE LONGER THAN 10 MINUTES	DEFECTIVE MAIN CONTROL BOARD	CHANGE BOARD. WHEN CHANGING BOARD ALWAYS SET DIP SWITCHES TO EXACT POSITION OF DEFECTIVE BOARD BEING REPLACED.
DEFROST CYCLE ACTIVE DURING ABOVE FREEZING OUTDOOR TEMPERATURE	DEFECTIVE TEMPERATURE SENSOR	CHANGE SENSOR
LATCH OPENS	EXCESSIVE CLOSING FORCE	REPLACE LATCH
	REPEATED FORCING OF LATCH WEARS OFF LOCKING TAB ALLOWING IT TO POP OPEN. FORCING DOOR SHUT, THEN FORCING LATCH WEARS OFF LOCKING TAB ON LATCH.	LATCH MUST BE OPEN PRIOR TO LATCHING DO NOT PULL DOOR SHUT
LOCKED ON HIGH SPEED	DEHUMIDISTAT SET TOO LOW	REDUCE SET POINT
	DEHUMIDISTAT DEFECTIVE	REPLACE
NOT ALL WALL SWITCH CONTROL ILLUMINATE WHEN ONE IS ACTIVATED	DEFECTIVE CONTROL.	REPLACE
	FEED LINE TO WALL SWITCH CONTROL TOO LONG	SHOULD BE LESS THAN 2,000 LINEAL FEET IN TOTAL

NW85T/NW125T

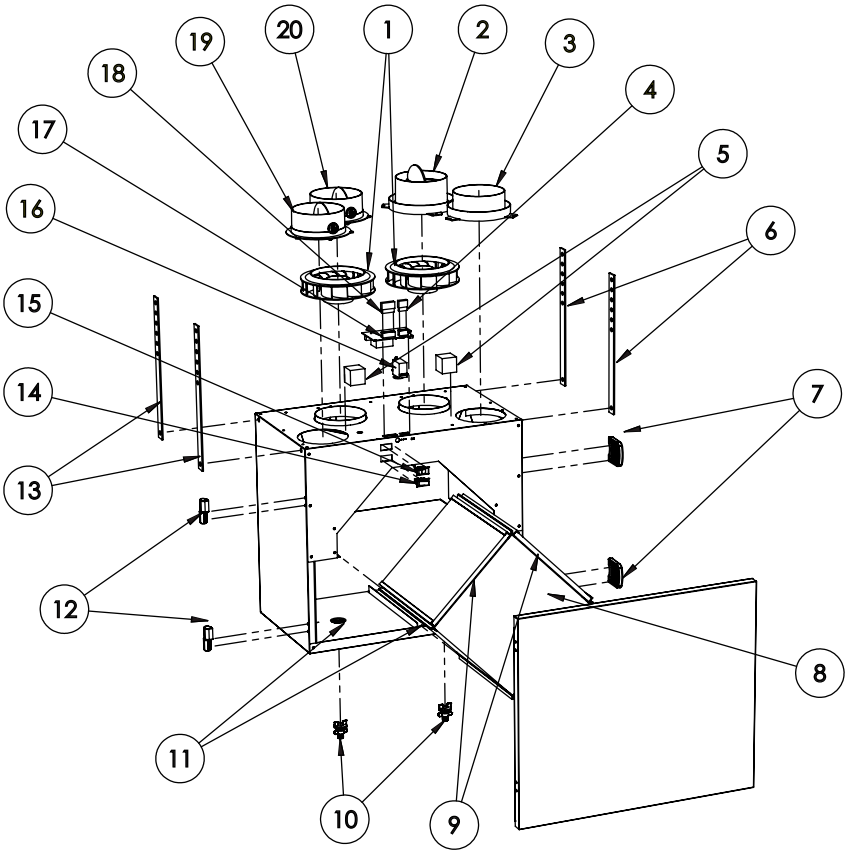


Replacement parts listing
MODEL NW85T



ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	8.MTRH25A3	MOTORIZED IMPELLER	2
2	8.CLDSPLY85T	COLD SUPPLY COLLAR	1
3	8.CLDEX85T	COLD EXHAUST COLLAR	1
4	8.CONN4	WIRE CONNECTOR 4 POLE	1
5	8.CAP475V6MF	MOTOR CAPACITOR	2
6	8.STRAP25	HANGING STRAP	2
7	8.LATCH3	DOOR LATCH	2
8	8.CORE85T	CORE	1
9	8.FILT85T	AIR FILTER	2
10	8.SPIGOT	DRAIN SPIGOT ASSEMBLY	2
11	8.TRAYNW85T	DRAIN PAN	2
12	8.HINGEPL	DOOR HINGE	2
13	8.STRAP25	HANGING STRAP	2
14	8.SWRCKR	DOOR SAFETY SWITCH	1
15	8.SWPADDLE	ON-OFF SWITCH	1
16	8.DMPRMTRT	DAMPER MOTOR	1
17	8.BOARDNWT	MAIN CONTROL	1
18	8.CONN6	WIRE CONNECTOR 6 POLE	1
19	8.WRMEX85T	WARM EXHAUST COLLAR	1
20	8.WRMSPLY85T	WARM SUPPLY COLLAR	1

Replacement parts listing
MODEL NW125T



ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	8.MTRH25A3	MOTORIZED IMPELLER	2
2	8.CLDSPLY125T	COLD SUPPLY COLLAR	1
3	8.CLDEX125T	COLD EXHAUST COLLAR	1
4	8.CONN4	WIRE CONNECTOR 4 POLE	1
5	8.CAP475V6MF	MOTOR CAPACITOR	2
6	8.STRAP25	HANGING STRAP	2
7	8.LATCH3	DOOR LATCH	2
8	8.CORE125T	CORE	1
9	8.FILT125T	AIR FILTER	2
10	8.SPIGOT	DRAIN SPIGOT ASSEMBLY	2
11	8.TRAYNW125T	DRAIN PAN	2
12	8.HINGEPL	DOOR HINGE	2
13	8.STRAP25	HANGING STRAP	2
14	8.SWRCKR	DOOR SAFETY SWITCH	1
15	8.SWPADDLE	ON-OFF SWITCH	1
16	8.DMPRMTRT	DAMPER MOTOR	1
17	8.BOARDNWT	MAIN CONTROL	1
18	8.CONN6	WIRE CONNECTOR 6 POLE	1
19	8.WRMEX125T	WARM EXHAUST COLLAR	1
20	8.WRMSPLY125T	WARM SUPPLY COLLAR	1

WARRANTY

HRV Unit

Summeraire Mfg. warrants the entire Heat Recovery Ventilator to the original purchaser should it prove to be defective by reason of defective material and or faulty workmanship with in two (2) years of the install date. Extended warranties are offered for the “Core” and “Electrical components” as outlined below.

Core

Summeraire Mfg. warrants the “Core” of the Heat Recovery Ventilator to the original purchaser if the core has become defective by reason of defective material and/or faulty workmanship. This warranty applies to the original purchaser of the Heat Recovery Ventilator for as long as they own the dwelling.

Electrical Components

Summeraire Mfg. warrants the “Electrical components” of the Heat Recovery Ventilator to the original purchaser if any of the electrical components have become faulty by reason of defective material and/or faulty workmanship. This warranty applies to the original purchaser of the Heat Recovery Ventilator for a period of five (5) years from the date of install as long as they own the dwelling.

GENERAL PROVISIONS

Summeraire Mfg. will supply a replacement HRV unit or component as prescribed in the forgoing section, F.O.B. Peterborough, Ontario, Canada. Replacement units and/ or components are warranted for the remainder of the original warranty period.

This warranty does not cover defects caused by: modifications, alteration, abuse to, or misuse of the product or it’s operation in a manner contrary to the instructions included with the unit at the time of shipment, or failure to perform maintenance as detailed in aforementioned instructions.

This warranty expressly supersedes all other warranties and obligations of Summeraire Mfg.. No person has authority to alter or modify the terms of this warranty in any matter.

This warranty does not include any freight, labour, including diagnostic labour, or sales tax that might be incurred by the purchaser if a unit and or parts require replacement.

Under no circumstances shall Summeraire Mfg. be liable to the purchaser or any other person(s) for any consequential damages, whether arising out of breach of warranty, breach of contract, negligence or otherwise.

Keep your warranty at work for you. Please complete and mail your warranty Registration Card to Summeraire Mfg., 2040 Fisher Drive, Peterborough, Ontario, Canada, K9J 6X6 to register this warranty.

SUMMERAIRE

Built Better To Last Longer

Summeraire Mfg.
Peterborough, Ontario
Canada, K9J 6X6

X-NW85T-125T-INSMAN-EN-REV48

Specifications and illustrations subject to change
without notice and without incurring obligations.